lytically infecting the transformed bacterial host cell with a bacteriophage λ having cI_{857}, Q_{am117}, and R_{am54} mutations; and

cultivating the *E. coli* host cell under a culture condition that induces lytic growth of said cell without lysis until a desired level of production of said protein is reached, wherein said protein is produced as a soluble, biologically-active protein.

42. (New) The method of claim 41, wherein the protein is human alpha-2b.

43. (New) The method of claim 41, wherein the host cell further comprises recA$^-$13.

44. (New) The method of claim 41, wherein the *E. coli* host cell produces a suppressor for the repair of amber-mutations.

45. (New) The method of claim 41, wherein the *E. coli* host cell lacks a suppressor for the repair of amber-mutations.

46. (New) The method of claim 41, wherein the infecting bacteriophage λ is provided at a multiplicity of infection in a range of about 1 to about 100.

47. (New) The method of claim 41, wherein the infecting bacteriophage λ is provided at a multiplicity of infection in a range of about 10 to about 25.

48. (New) The method of claim 41, wherein lysis of the *E. coli* host cell is delayed at higher multiplicities of infection relative to lower multiplicities of infection.

49. (New) A method for producing a biologically active protein, comprising:

transforming an *E. coli* host cell with a plasmid having at least one copy of an expressible eukaryotic gene encoding said protein;

lytically infecting the transformed bacterial host cell with a bacteriophage λ having cI_{857}, Q_{am117}, and R_{am54} mutations, wherein the bacteriophage also contains at least one copy of said expressible gene encoding said protein; and

cultivating the *E. coli* host cell under a culture condition that induces lytic growth of said cell without lysis until a desired level of production of said protein is reached, wherein said protein is produced as a soluble, biologically-active protein .

50. (New) The method of claim 49, wherein the strain of *E. coli* produces a suppressor for repairing amber-mutations.

51. (New) The method of claim 49, wherein the strain of *E. coli* lacks a suppressor for repairing amber-mutations.

52. (New) The method of claim 49, wherein said protein is human alpha-2b interferon.

53. (New) A method for producing a biologically active protein, comprising:

transforming an *E. coli* host cell with a plasmid having at least one copy of an expressible eukaryotic gene encoding said protein;

lytically infecting the transformed bacterial host cell with a bacteriophage λ having at least one mutated gene selected from the group consisting of N, Q, and R;

providing conditions to delay lysis; and

cultivating the *E. coli* host cell under a culture condition that induces lytic growth of said cell without lysis until a desired level of production of said protein is reached.

54. (New) The method of claim 53, wherein the bacteriophage λ has a temperature-sensitive mutation.

55. (New) The method of claim 54, wherein the temperature–sensitive mutation is cI_{857}.

56. (New) The method of Claim 53, wherein said strain of *E. coli* lacks a suppressor for repairing amber-mutations.

57. (New) The method of Claim 53, wherein said strain of *E. coli* is recA deficient.

58. (New) A method for producing a biologically active protein, comprising:

transforming an *E. coli* host cell with a plasmid having at least one copy of an expressible eukaryotic gene encoding said protein;

lytically infecting the transformed bacterial host cell with a bacteriophage λ, having at least one mutated gene selected from the group consisting of N, Q, and R, wherein the bacteriophage also contains at least one copy of said expressible gene encoding said protein;

providing conditions to delay lysis; and

cultivating the *E. coli* host cell under a culture condition that induces lytic growth of said cell without lysis until a desired level of production of said protein is reached.

59. (New) The method of claim 58, wherein the bacteriophage λ has a temperature-sensitive mutation.

60. (New) The method of claim 59, wherein the temperature–sensitive mutation is cI_{857}.

61. (New) The method of Claim 58, wherein said *E. coli* host cell lacks a suppressor for repairing amber-mutations.

62. (New) The method of Claim 58, wherein said *E. coli* host cell is recA deficient.

63. (New) A method of producing a biologically active protein comprising:

growing a first strain of *E. coli* cells, which harbor a strain of bacteriophage λ, wherein the bacteriophage λ has a temperature-sensitive mutation,

manipulating the temperature to provide for lysis of the first strain of *E. coli* cells and release of the bacteriophage λ,

lytically infecting a second strain of *E. coli* cells with the released bacteriophage λ, wherein said second strain of *E. coli* cells has been transformed with a plasmid having at least one copy of an expressible gene encoding said protein; and

culturing the second strain of *E. coli* host cells such that protein is produced and released to the media, wherein said protein is produced as a soluble, biologically-active protein.